

REMARKS

Applicants thank the Examiner for the courtesy extended to Applicants' attorney during the interview held December 23, 2004, in the above-identified application. During the interview, Applicants' attorney explained the presently-claimed invention and why it is patentable over the applied prior art. The discussion is summarized and expanded upon below.

As recited in above-amended Claim 1, the invention is a glass substrate for a data storage medium, which consists essentially of: in terms of weight percent

SiO₂ 40 to 59 %,

Al₂O₃ 5 to 20 %,

B₂O₃ 0 to 8 %,

MgO 0 to 10 %,

CaO 0 to 12 %,

SrO 10.6 to 20 %,

BaO 0 to 2 %,

ZnO 0 to 4 %,

Li₂O 0 to 2 %,

Na₂O 0 to 10 %,

K₂O 0 to 8 %,

TiO₂ 2 to 10 %, and

ZrO₂ 0 to 5 %,

wherein MgO + CaO + SrO + BaO is at least 15 %;

TiO₂ + ZrO₂ is at least 2.3 %; and which has an average linear expansion coefficient of at least $70 \times 10^{-7}/^{\circ}\text{C}$ within the range of 50 to 350° C, wherein the glass has a glass transition temperature of at least 600°C, and wherein the number of attachments having sizes

ranging from 1 μm to less than 10 μm present on the surface of the glass substrate held in a steam atmosphere at 120° C under 2 atm for 20 hours, is not more than $5 \times 10^4/\text{cm}^2$.

An important aspect of the glass of the present invention is that the sum of the Al_2O_3 and TiO_2 components is important from the viewpoint of its weather resistance characteristics, as demonstrated in the combination of the N_L and N_S data obtained for examples of glass formulations of present Examples 1-8, 11 and 13-15. It is clear that all of these examples exhibit favorable values for both N_L and N_S which is consistent with the comments in the paragraph bridging pages 6 and 7 of the specification and on pages 10 and 11 of the specification concerning Al_2O_3 and TiO_2 and the sum of Al_2O_3 and TiO_2 in that the presence of these two oxides has a significant impact on the corrosion resistance of product glasses.

As can be ascertained by reviewing the examples in the specification herein that are within the terms of the presently-claimed invention, N_S is, in all cases, 5 (i.e., $5 \times 10^4/\text{cm}^2$) or less. On the other hand, the comparative examples, i.e., Examples 9, 10, 12, and 16-21 all have an N_S greater than 5.

While it is true that the specification states that the presence of TiO_2 is not essential, nevertheless, this does not belie the fact that the presence of TiO_2 has an impact on the expansion coefficient, corrosion resistance and glass transition temperature of the product glass as stated.

The rejection of Claims 1, 3, 5, 6, 8, 9, 11, 13-15 and 25-27 under 35 U.S.C. § 103(a) as unpatentable over U.S. 5,854,152 (Kohli et al), is respectfully traversed. Kohli et al discloses a glass for display panels. However, as is clear from the comments at column 2 thereof, TiO_2 is clearly an optional component of the glass, and whether used alone or in combination with other optional oxides, must not be present in an amount greater than 5%. Nothing is mentioned about the reason for use of TiO_2 in the glass of the reference, and

indeed, not one of the examples of Table I contains TiO_2 as a component. Still further, there is absolutely no disclosure or suggestion in Kohli et al that Al_2O_3 and TiO_2 in some way cooperate to improve upon one or more properties of the glass. Further, Kohli et al does not show or suggest the subject matter of above-amended Claim 1, which sets forth specific combined quantities of Al_2O_3 and TiO_2 for the improvement of one or more properties of the glass, as well as a maximum N_S value. In sum, Applicants submit that Kohli et al does not present a *prima facie* case of obviousness.

Although the Examiner refers to the data of Example 10 of Table 1 of the specification herein as not supportive of or as being inconsistent with Applicants' statements concerning the property inducing effects or significance of Al_2O_3 and TiO_2 , Applicants point out that of all 21 examples of glass compositions described in the Table, the composition of Example 10 contains the greatest quantity of alumina. In view of the fact that the specification specifically indicates at page 6 that increasing amounts of Al_2O_3 in the composition **improve** the corrosion resistance of the glass, as well as increase the glass transition temperature of the glass, it is therefore clear that the data of Example 10 are not inconsistent with Applicants' comments concerning the significance of the N_L and N_S data of Examples 1-8, 11 and 13-15 because of the relatively high content of alumina in this glass.

In the present Office Action, in response to Applicants' arguments, the Examiner continues to hold that a *prima facie* case of obviousness has been made out, finding that the presently-recited ranges of components overlap with that of Kohli et al, and the Examiner continues to rely on present Example 10, which the Examiner finds contains no TiO_2 , and has comparable N_S and N_L values to those of the present invention.

In reply, Example 10 does not have a comparable N_S value to the presently-recited maximum of the present claims. Indeed, the value for N_S of Example 10 is $6 \times 10^4/\text{cm}^2$, which is 20% greater than the presently-recited maximum value of 5. Moreover, the

comparable examples in the specification herein, i.e., Examples 9, 10, 12, and 16-21, are all closer to the presently-claimed invention than any of the examples of Kohli et al. Compare *Ex parte Humber*, 217 USPQ 265 (Bd. Pat. App. & Inter. 1981) (**copy enclosed**) (comparative data showing the claimed chlorine-containing compounds to be unexpected over various (non-prior art) chlorine-containing isomers was accepted as more probative over prior art, drawn to non-chlorine containing analogs of the claimed compounds, asserted to be closest.)

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claim 1, 3, 5, 6, 8, 9, 11, 13-16 and 25-27 under 35 U.S.C. § 103(a) as unpatentable over U.S. 6,162,750 (Miwa et al), is respectfully traversed. Miwa et al discloses a glass for use in a plasma display panel or unit. Although TiO₂ is briefly mentioned at column 2, lines 5-15 and column 4, lines 8-17 as an optional component of the glass composition, the stated reason for the presence of TiO₂ is to protect the glass from UV rays. There is no disclosure or suggestion of the weather resistance characteristic of TiO₂ as a component of the present composition, and there is certainly no disclosure or suggestion that the combination of Al₂O₃ and TiO₂ at a specific minimum value cooperates in achieving a glass composition that exhibits improved corrosion resistance. Moreover, of all the sample numbers listed in Table 1 of Miwa et al, only Sample 3 meets the presently-recited requirement that the amount of Al₂O₃ + TiO₂ be at least 13% (in said Sample 3, the amount is 13%). However, the strain point therein is 582°C, which is lower than the presently-recited minimum glass transition temperature of 600°C. As described in the specification herein, a glass having a minimum glass transition temperature of 600°C has an advantage that the recording density can be easily increased. Miwa et al recognizes no nexus between the total amount of Al₂O₃ and TiO₂, on the one hand, and minimum glass transition temperature on the

other hand. In sum, Applicants submit that Miwa et al does not present a *prima facie* case of obviousness.

In the present Office Action, in response to Applicants' arguments, the Examiner cites a reference to Shelby for a disclosure that the glass transition temperature of a soda-lime-silica melt is higher than the strain point. In reply, Shelby does not prove that the glass transition temperature of Sample 3 of Miwa et al meets the glass transition temperature requirements of the present claims. More significantly, the Examiner finds that Miwa et al discloses overlapping ranges with regard to the presently-recited components, and thus holds that a *prima facie* case of obviousness is established.

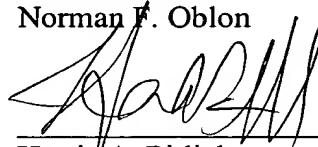
In reply, the above-discussed comparative data applies as well to this rejection as it does to the rejection over Kohli et al, discussed above. The arguments with respect thereto, and the citation of *Humber*, apply herein as well.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Harris A. Pitlick
Registration No. 38,779

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)
NFO/HAP/cja



Ex parte Humber, Bruderlein, and Asselin

(BdPatApp&Int)

217 USPQ 265

Opinion dated Nov. 13, 1981

U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences

Headnotes

PATENTS

1. Patentability — Composition of matter (§ 51.30)

Consistent with *In re Holladay*, 199 USPQ 516, applicants may show improved results for their claimed compounds in comparison with compounds that are even more closely related than those of prior art relied upon by Examiner in order to rebut prima facie case.

Particular patents — Chlorinated Compounds

Humber, Bruderlein, and Asselin, 13-Chloro-Benzocycloheptapyridoisoquinoline Derivatives and Process Therefor, rejection of claims 1-3 and 5-9 reversed.

Case History and Disposition:

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Appeal from Art Unit 122.

Application for patent of Leslie G. Humber, Francois T. Bruderlein, and Andre A. Asselin, Serial No. 817,660, filed July 21, 1977. From decision rejecting claims 1-3 and 5-9, applicants appeal (Appeal No. 443-29). Reversed.

Attorneys:

John W. Routh, New York, N.Y., for appellant.

Judge:

Before Blech and Goldstein, Examiners-in-Chief, and Seidleck, Acting Examiner-in-Chief.

Opinion Text**Opinion By:**

Blech, Examiner-in-Chief.

This is an appeal from the final rejection of claims 1 through 3 and 5 through 9, all the claims remaining in the case.

Representatives of the claimed invention are:

1. A compound of formula 1

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

in which R is lower alkyl selected from the group consisting of straight chain alkyl having up to six carbon atoms and branched chain alkyl having up to four carbon atoms or R is cycloalkyl having 3-6 carbon atoms, or a pharmaceutically acceptable acid addition salt thereof.

5. A method of producing neuroleptic effects in a mammal which comprises administering to said mammal an effective neuroleptic amount of a compound of Claim 1, or a pharmaceutically acceptable salt thereof.

6. A pharmaceutical composition for producing neuroleptic effects in a mammal comprising an effective neuroleptic amount of a compound of Claim 1, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

The references cited by the Examiner are:

Table set at this point is not available. See table in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

Winthrop et al (Winthrop), J.O.C., 27, pp. 230-240, 1962.

Voith et al (Voith), Psychopharmacologia, 42, pp. 11-20, 1975.

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Humber et al (Humber II), Abstract of Papers, 167th ACS National Meeting, Los Angeles, Calif., March 31-April 5, 1974.

Bruderlein et al (Bruderlein II), J. Med. Chem., Vol. 18, pp. 185-188, 1975.

The appealed claims stand rejected for obviousness under 35 U.S.C. 103. The Examiner considers them to be unpatentable over Voith and Bruderlein II in view of Humber I and Winthrop.

The non-chlorinated analogs of the claimed compounds, specifically also of the preferred species wherein R in the formula above set forth is isopropyl (named "Butaclamol"), are known, as shown by Voith and Bruderlein II. It is the Examiner's position that the claimed 13-Cl substituted derivatives thereof would be prima facie obvious to the artisan in light of the teachings of Humber I and Winthrop and that this presumption of obviousness has not been adequately rebutted by the Declaration evidence of record.

We cannot subscribe to the Examiner's holding. It is predicated on the assumption that chlorination, in general, is well known in the pharmaceutical art and since related compounds possessing neuroleptic properties are known to be useful in either their non-chlorinated or

chlorinated forms that the claimed compounds are thus obvious. Such an assumption manifestly is bottomed on the proposition that the position in the molecule at which the chlorination occurs is inconsequential and of no significance. But such is contraindicated by the very art relied upon by the Examiner, as well as by the Voith Declaration under 37 CFR 1.132. Thus, from the teaching of Winthrop the artisan would favor the 14-Cl substituted compound inasmuch only its precursor is disclosed to have increased activity. The Voith Declaration, however, convincingly demonstrates unexpectedly significant improved results for the 13-chloro vis-a-vis the 9-Cl, 12-Cl and 14-Cl substituted compounds. Such clearly could not have been foreseen and rebuts the Examiner's basic premise of equivalency of chlorination no matter at which position it is effected.

[1] Of course we appreciate and are cognizant of the Examiner's contention that no improved results have been shown for the claimed chlorinated compounds vis-a-vis the non-chlorinated analog butaclamol. However, consistent with the holding by the court in *In re Holladay*, 584 F.2d 384, 199 USPQ 516 (CCPA 1978), appellants may show improved results for their claimed compounds in comparison with compounds which, in fact, are even closer related than those of the prior art relied upon by the Examiner in order to rebut the prima facie case. Consequently, the comparative showing vis-a-vis the other chlorinated compounds which are more similar to those claimed than the non-chlorinated derivatives is viable probative evidence which palpably must be held as refuting the presumption of obviousness engendered by the art.

Accordingly, the decision of the Examiner is reversed.

Reversed.

- End of Case -